

CONSISTENCY MEETING

Date: 2/12/2014

DEPARTMENTAL GOALS:

- 85 - 90 % 1 DAY TURN AROUND
- 80 - 85 % CONTRACTOR PASS RATE
- **QUALITY INSPECTIONS!**
- **EXCELLENT CUSTOMER SERVICE!**

SAFETY ISSUES:

REMEMBER COUNTY CELL PHONE POLICY, USE ALL APPROVED SAFETY EQUIPMENT ISSUED TO YOU. (i.e. HARDHAT, SAFETY GLASSES, SAFETY SHOES, PPE)

Q: WHY ARE WE HERE? A: TO SERVE THE CUSTOMER

Consistency Questions

1. Is it permissible to sleeve SER cable in PVC from an outdoor panel into a crawl space? (Chris Dellinger)

Yes, the key word here is sleeve. See 338.10(B)(4)(b)

2. How do you ground Service Equipment in more than 1 enclosure-or Subpanel (Gerald Barnes)

3. In a dwelling, do the receptacles installed in an appliance garage have to be GFCI protected. (David Rains)

Yes see 210.8. While these receptacles don't count as the required countertop receptacles, they still serve the countertop space none the less.

4. I have an outdoor floodlight controlled by a switch located in the living room. Since the lighting outlet is located outside the living room, would this have to be on an AFCI circuit? (Matt King)

(A) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in...

No there are no requirement for AFCI protection on outdoor *OUTLETS*

Outlet. A point on the wiring system at which current is taken to supply utilization equipment.

5. Is a Butler's Pantry required to be on small appliance circuit, GFCI, and/or AFCI? (Craig Sloop)

In the Interpretations White Book pg 7.5:

Per 210.52 (B) (1) & (C) of the 2008 code, it is required that all spacing and GFCI protection be met, the same as all other kitchen countertops. If the butler pantry is located outside of the kitchen (i.e. dining room or hallway) it will be required to be on AFCI as well as GFCI.

6. What is the 50' Rule? (Joe Weathers)

7. I was recently turned down for running EMT on a rooftop. Is this a code requirement? (Joe Weathers)

The Interpretations White Book says on pg 13.18:

For physical protection and for corrosion resistance, all conduits installed on accessible roofs shall be IMC, RMC, or schedule 80 PVC. Schedule 40 PVC conduit may be run on the parapet walls where not subject to physical damage. Proper expansion joints shall be used for the PVC conduits

Hi Tom,

I have talked with Joe Weathers, Chief Electrical Inspector for Mecklenburg County, this morning. Apparently the issue was a result of damaged and rusted EMT installed on the roof of a building they had discovered years ago. However, there is a distinct difference between restrictions on wiring methods that may be subject to physical damage and those subject to "severe" physical damage as addressed in Section 358.12(1) of the State Electrical Code (NEC).

If the rooftop had limited access with no public travel, also meaning no stairways or unobstructed ladders to gain access, then I would question what might cause "severe" physical damage. There would be no vehicular access to cause damage and only personnel making repairs, exchanges, or alterations would need access. Routine maintenance requiring access for HVAC equipment or repairs shouldn't expose the EMT conduits to severe damage.

If an owner were concerned that allowing other trades access to a rooftop might cause damage to other systems installations that owner probably would reconsider the contractor he or she chose to do the work. If the other trades workers damaged the equipment they would probably be held responsible also. The aspect that in the next 20 years the roof might need major repair might have no bearing on the conduit regardless of the type installed. An electrical contractor would probably have to remove the conduits for such an extensive repair, then replace them.

Ron

8. Is it permissible to use compression fittings on EMT in wet locations or do they have to be listed as rain tight? (Chris Dellinger)

It is permissible and they do have to be listed rain tight. See (FKAV) pg 151 in the 2013 UL White Book:

ELECTRICAL METALLIC TUBING FITTINGS (FKAV)

GENERAL

This category covers electrical metallic tubing fittings such as connectors, couplings and expansion fittings, from 1/2 to 4 (metric designators 16 to 103) inclusive trade sizes, intended for installation and use in accordance with the following information and the limitations specified in Electrical Metallic Tubing (FJMX).

All male threaded fittings have only been investigated for use with locknuts.

Indentor Fittings — Indentor-type fittings are for use with metallic-coated electrical metallic tubing only and require a special tool supplied by the manufacturer for proper installation. Diametrically opposed indentor-type tools require two sets of indentations nominally 90° apart. Triple-indent tools require one set of indentations.

Grounding — These fittings are considered suitable for grounding for use in circuits over and under 250 V and where installed in accordance with ANSI/NFPA 70, "National Electrical Code."

Reusability — Fittings have not been investigated for reusability. Reusability should be determined by the installer and the Authority Having Jurisdiction.

PRODUCT MARKINGS

Fittings suitable for use in poured concrete or where exposed to rain are so indicated on the device or carton. The term "rain tight," "wet location" or the equivalent on the carton indicates suitability for use where directly exposed to rain. The term "concrete tight" or equivalent on the carton indicates suitability for use in poured concrete.

Fittings have been tested for use only with steel tubing unless marked on the device or carton to indicate suitability for use with aluminum or other material.

CARTON MARKINGS

A fitting that is taped completely (from the raceway to the box, or raceway to raceway) is concrete-tight when the product carton is marked "CONCRETE-TIGHT WHEN TAPED."

ADDITIONAL INFORMATION

For additional information, see Electrical Metallic Tubing (FJMX) and Electrical Equipment for Use in Ordinary Locations (AALZ).

REQUIREMENTS

The basic standard used to investigate products in this category is ANSI/UL 514B, "Conduit, Tubing, and Cable Fittings."

UL MARK

The UL symbol on the product and the Listing Mark of UL on the smallest unit container in which the product is packaged is the only method provided by UL to identify products manufactured under its Listing and Follow-Up Service. The Listing Mark for these products includes the UL symbol (as illustrated in the Introduction of this Directory) together with the word "LISTED," a control number, and the product name "Electrical Metallic Tubing Fitting" (or "EMT Fitting"), "Connector" or "Coupling," or other appropriate product name as shown in the individual Listings.

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UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. UL shall not incur any obligation or liability for any loss, expense or damages, including incidental or consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Guide Information.

9. I have been turned down several times lately for my conduits to LED pool lights being covered before inspection. The pools are 1 piece fiberglass pools and must be backfilled and filled with water immediately after setting in place. Is it really necessary to see these conduits since they only contain a 12V low voltage cable? (Matt King)

Yes this is necessary. There is nothing in articles 300 or 411 or 680 that say this underground installation does not have to be inspected.

10. We are replacing the kitchenette cabinets and countertops in the guest suites in a hotel. Will we have to bring it up to the current code like we would in a house? It does have a cooktop. (Chris Dellinger)

Yes.

210.60 Guest Rooms, Guest Suites, Dormitories, and Similar Occupancies.

(A) General. Guest rooms or guest suites in hotels, motels, sleeping rooms in dormitories, and similar occupancies shall have receptacle outlets installed in accordance with 210.52(A) and (D). Guest rooms or guest suites provided with permanent provisions for cooking shall have receptacle outlets installed in accordance with all of the applicable rules in 210.52.

11. When replacing the existing receptacles in a hotel guest suite, do they have to be Tamper Resistant? (Craig Sloop)

Yes 406.4(D)(5); 406.13

406.4(D)(5) Tamper-Resistant Receptacles.

Listed tamper-resistant receptacles shall be provided where replacements are made at receptacle outlets that are required to be tamper-resistant elsewhere in this *Code*.

406.13 Tamper-Resistant Receptacles in Guest Rooms and Guest Suites.

All nonlocking-type, 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites shall be listed tamper-resistant receptacles.

12. I have EMT coming from a trough to a disconnect. I cut my own hole in the trough and the disconnect has concentric knockouts. It is a 480 volt circuit and I pulled an equipment grounding conductor. Do I have to install a bonding bushing at the disconnect? (David Rains)

Maybe

250.97 Bonding for Over 250 Volts. For circuits of over 250 volts to ground, the electrical continuity of metal raceways and cables with metal sheaths that contain any conductor other than service conductors shall be ensured by one or more of the methods specified for services in 250.92(B), except for (B)(1).

Exception: Where oversized, concentric, or eccentric knockouts are not encountered, or where a box or enclosure with concentric or eccentric knockouts is listed to provide a reliable bonding connection, the following methods shall be permitted:

(1) Threadless couplings and connectors for cables with metal sheaths

(2) Two locknuts, on rigid metal conduit or intermediate metal conduit, one inside and one outside of boxes and cabinets

(3) Fittings with shoulders that seat firmly against the box or cabinet, such as electrical metallic tubing connectors, flexible metal conduit connectors, and cable connectors, with one locknut on the inside of boxes and cabinets

(4) Listed fittings

13. I was thinking perhaps we could use our code consistency team to come up with an SOP for 700 and 701 load testing. Also we need to revise the SOP on PV inspections, when we came up with it there was only one type of system being installed residentially and now there are several. (Joe Weathers)

14. I was turned down for not installing an isolated ground to an isolated grounding type receptacle. Was the inspector correct? (Matt King)

Yes. 406.3(D)(1)

(D) Isolated Ground Receptacles. Receptacles incorporating an isolated grounding conductor connection intended for the reduction of electrical noise (electromagnetic interference) as permitted in 250.146(D) shall be identified by an orange triangle located on the face of the receptacle.

(1) Isolated Equipment Grounding Conductor Required.

Receptacles so identified shall be used only with equipment grounding conductors that are isolated in accordance with 250.146(D).

15. The available fault current coming into the trough from Duke Power is 33K. The electrical contractor has installed a 3 phase 200amp meter box. Inside the meter box the label states that the meter box is approved for up to 600 volts at 10K. Would this be a code violation or would this fall back onto the utility co.? The voltage is 120/208 3 phase and the load serving the unit is 145 amps. (Gerald Barnes)

230.66 Marking. Service equipment rated at 600 volts or less shall be marked to identify it as being suitable for use as service equipment. All service equipment shall be listed. Individual meter socket enclosures shall not be considered service equipment.

110.9 Interrupting Rating. Equipment intended to interrupt current at fault levels shall have an interrupting rating not less than the nominal circuit voltage and the current that is available at the line terminals of the equipment.

Equipment intended to interrupt current at other than fault levels shall have an interrupting rating at nominal circuit voltage not less than the current that must be interrupted.

110.10 Circuit Impedance, Short-Circuit Current Ratings, and Other Characteristics.

The overcurrent protective devices, the total impedance, the equipment short circuit current ratings, and other characteristics of the circuit to be protected shall be selected and coordinated to permit the circuit protective devices used to clear a fault to do so without extensive damage to the electrical equipment of the circuit. This fault shall be assumed to be either between two or more of the circuit conductors or between any circuit conductor and the equipment grounding conductor(s) permitted in 250.118. Listed equipment applied in accordance with their listing shall be considered to meet the requirements of this section.

[Duke energy Talks](#) (Joe Weathers)

[16. CE classes](#) (Joe Weathers)

NEXT MEETING:

Contractors - Wednesday March 12, 2014

Inspectors - Wednesday March 12, 2013